

5978.1/P

38754
2/6

OBSERVATIONS
ON THE
CURE AND PREVENTION
OF THE
CONTAGIOUS FEVER
*NOW PREVALENT IN THE CITY OF EDINBURGH,
AND ITS ENVIRONS;*
WITH
AN INQUIRY INTO THE
NATURE AND ORIGIN OF THE SPECIFIC POISON
PRODUCING THE VARIOUS FORMS OF THIS DISEASE;
THE MEANS NECESSARY FOR PREVENTING THE FORMATION,
AS WELL AS
ARRESTING THE PROGRESS OF THE CONTAGION,
WITH THE BEST CHEMICAL PROCESSES
FOR THAT PURPOSE.

By J. YULE, M. D. F. R. S. EDIN.

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS, AND ONE OF THE
PHYSICIANS TO THE PUBLIC DISPENSARY OF EDINBURGH.

EDINBURGH:

PRINTED FOR ARCHD. CONSTABLE & CO.;
AND FOR LONGMAN, HURST, REES, ORME & BROWN,
LONDON.

1818.

NEILL & Co. }
Printers. }

TO

WILLIAM WRIGHT,

M. D. F. R. S. LOND. & EDIN.

LATE PHYSICIAN TO THE ARMY UNDER

LIEUTENANT-GENERAL SIR RALPH ABERCROMBY

IN THE WEST INDIES,

AS A TRIBUTE OF RESPECT DUE TO GREAT TALENTS,

SUCCESSFULLY DIRECTED TO THE IMPROVEMENT OF MEDICINE;

AND TO

THE MANAGERS OF THE TWO PUBLIC
DISPENSARIES;

AND TO

THE SOCIETY FOR THE RELIEF OF THE
INDIGENT SICK,

WHO HAVE SO NOBLY EXERTED THEMSELVES,

DURING THESE WORST OF TIMES,

IN ALLEVIATING THE PRESENT DISTRESS OF THE

UNFORTUNATE OF THIS CITY ;

THIS SUMMARY IS,

WITH THE UTMOST RESPECT,

INSCRIBED BY

THE AUTHOR.

BRIEF OBSERVATIONS, &c.

It is generally known that a fever has been prevalent for some time in this City and the environs ; but the public in general are ignorant of its real nature ; and as, during the present year, (1817), from slow and almost unperceived advances, it has at last attracted a more serious attention ; and rumour having as usual either exaggerated or slighted its consequences, it is proper to state briefly the result of personal observation on this subject. Some well intentioned persons, indeed, are averse to noticing this subject publicly, on account, as they sagaciously remark, of the evil excited by alarm, which by the bye they seem to confound with panic. It requires no great effort,

however, to prove that a little alarm, granting it were unfounded in the present case, can do no harm, but on the contrary, by exciting precaution, must produce much positive good : for although this fever is chiefly prevalent among the labouring people, and in eight cases of ten exists under a form generally mild, still, being contagious, it is not to be slighted, since it is its very nature to extend its influence ; and, indeed, however mild the present form of this disease be on the whole, yet, a change of external circumstances, especially in the atmosphere, its temperature, humidity, dryness, or stillness, powerfully modifies the effects of Typhous as well as other poisons. Hitherto these circumstances have operated favourably ; we have had a dry temperate spring, and comparatively cold summer and autumn, accompanied by fresh gales of wind frequently from the north-east, and occasionally from the west. Of the modification of this disease, by the circumstances of those infected, there has been sufficient inductive evidence during its progress. Notwithstanding the general mildness of the symptoms, delirium, chiefly during the night, with very slight headach, or increase of the natural

heat, or frequency of pulse ; the alternate feeling of chilliness and heat, seldom recurring during the course of the disease ;—there are other cases, in which all these symptoms have occurred in a degree very highly aggravated ;—strong delirium, intense headach, intolerable thirst, great heat of the skin and restlessness, with a quick, and, in the beginning of the disease, a hard pulse, gradually becoming feebler and still more frequent, with a continued stupor, yellowness of the skin, petechial spots, and other threatening appearances, ending in not a few instances in the death of several respectable citizens.

But if the state of the labouring people should become still more depressed by poverty and privation of every comfort ; if, instead of possessing two comfortable apartments as formerly, families of eight or more individuals should continue, during the ensuing winter, huddled into one confined chamber, in a sunk storey, in a narrow lane, what, under such accumulated misery, must be the necessary consequence ? Even at present this is in many instances no imaginary picture ; not one but several families, may now be found crowded into a single apartment, each paying a small sum of weekly

rent ; the apartment differing from the sick ward of a well kept hospital only in being worse ventilated, more crowded, and consequently the air less pure ; and the whole inmates being in want of sufficient food. In such dwellings, the broken-hearted mother, the anxious protectress of her young family, no longer enjoys the decent pride of her past condition,—the industrious careful housewife, in the possession of her own plain, but well kept furniture ;—all is now sold, or in the hands of the pawn-broker, without hope of recovery,—whilst her poor dejected partner, is uncertain of employment, in many cases, at scarcely half his former wages !

From these preliminary observations, which might easily, were it necessary, be enlarged, there seems no great difficulty in tracing

THE DOMESTIC ORIGIN OF TYPHOUS POISON.

There is an Elasticity, if such a term may be used, in the well organised body, in a state of health, by which, what is hurtful is at once repelled by the provident functions of nature. All the parts of the complex machine perform their offices with admirable regularity ; but when adversity arrives,

the mind itself sinks, and the whole system with it,—all its operations are now imperfectly performed. What is noxious is no longer effectually thrown off, either from the surface, the kidneys, or the lungs; and the digestive organs likewise failing, nature no longer refreshed with new powers, becomes passive under the assault of circumstances, which, in a state of vigour, however offensive, would have made no permanently hurtful impression. Here, then, we have a brief view of what Physicians term *predisposition* to disease in general. But if to this be added other necessary results of extreme poverty,—insufficient and unwholesome diet,—want of clean and proper clothing and bedding,—and above all, the respiration of an atmosphere contaminated, not merely with the gases extricated by the functions of the skin and lungs, but with the accumulated POISON KNOWN TO BE DERIVED FROM THE BODIES OF A NUMBER OF PERSONS CROWDED WITHIN A CLOSE SPACE, the result is uniform. Numerous facts attest the origin of Typhous contagion, under such circumstances; and when once produced in a populous city like Edinburgh, containing at all times a number of families living under the same roof, entering by

a passage common to the whole, must not the infection certainly spread? Pestilence, under such circumstances, might be said to “ walk abroad ;” and whatever hypothetical objections may be offered to this by men of deservedly high consideration, the strongest reasons warrant the conclusion, that, admitting, under former comparatively favourable circumstances, there would have been no great danger in the present general appearance of this fever, we ought to recollect that the times are peculiarly unfavourable. Poverty and Pestilence are no new associates. The assault, unforeseen, would indeed be terrible. Let us then in time be on our guard. Look at Ireland. It is the height of folly to shut our eyes,—to be surprised by the accession of danger, when timely precaution would perhaps effectually prevent it altogether.

I shall subjoin, as illustrative of the origin and general appearances of the present epidemic, some out of many cases of this disease, evidently originating in the unfortunate condition of those affected with it. Indeed, every Physician conversant with the diseases of the poor, and especially those officiating at Dispensaries, and similar institutions,

must have been powerfully struck with the sequence of Typhous contagion, under the circumstances here presumed *.

1. Being, in April last, called to visit, among others, an Irish labourer, who had been employed in the work at the Calton Hill, who having previously had the usual precursory symptoms of this fever,—a feeling of coldness and heat, feebleness, loss of appetite, sickness, headach, and pain in various parts of the body, &c.—On entering his dwelling from a stair in the Cowgate, I was nearly suffocated. The closeness and combination of smells were intolerable. There was no opening to this dungeon but the door from the stair; and the only possible mean of ventilation was the chimney,

A 4.

* Besides the instances here stated from personal observation of the appearance of infection in different quarters of the City, a professional friend of the *first eminence*, stated to me, that in one close in the Canongate, seventeen cases of infection occurred during the present year, not to mention the cases stated in BLACKWOOD'S Magazine, (September and October 1817,) which publication I did not see until the present sheet was nearly printed off.

leading from a small fire, which faintly illuminated this abode of misery and despair. Here the husband lay on the floor, with scarcely a covering, ill of this fever, with a wife and family of five naked children. From this single and close apartment, the children, occupied chiefly in begging, had hitherto escaped the disease; but the poor anxious mother, constantly detained in this contaminated dwelling, was soon also seized with the precursory symptoms, and was carried to the Infirmary in a state of high delirium, with the other accompanying symptoms, more highly aggravated than in her husband, who had been, for some days, compelled by necessity to crawl abroad, for his weekly pittance of tenpence daily, kindly bestowed on him, and many others under similar circumstances, from the Public Fund, on certification of their condition. Being naturally a strong athletic man, the symptoms of high excitement in the commencement of the attack were evidently alleviated by diet necessarily spare, and being thus forced from his close and pestilential dwelling, he gradually recovered, with suitable attention to the necessary circumstances of cure.

2. Another instance, originating under circumstances very similar to the last, occurred in a family dwelling in a sunk area in the New Town. In this case, dampness was added to closeness. The family consisted of nine ; of whom seven passed through the disease ; and perhaps there seldom occur circumstances in which the accumulation of Typhous poison could be more clearly traced to its source. Six, and occasionally seven, individuals, were crowded into a small close apartment, without even the assistance of a fire to force a change in the contaminated atmosphere they repeatedly breathed. Here also, as might be supposed, the fœtor was intolerable, although the natural discharges were removed as quickly as possible ; but it must have been observed, that in similar damp and confined situations, there is the utmost difficulty in freeing an apartment from the smell of the animal exhalations by ventilation alone *. Indeed, odours in general are diffused more powerfully when suspended in a moist and

* Appendix.

moderately warm atmosphere, and Typhous poison, however distinct, would seem to have its action heightened on principles apparently similar. Although none of this poor family died, the symptoms, delirium, headach, thirst, slimy tongue, and pains in various parts of the body, were strongly marked ; and the infectious nature of the disease was clearly illustrated by the fact of its spreading to two distinct floors of the same building, all communicating by a common passage.

3. A young healthy woman, twenty years of age, was seized about the middle of the same month, (May last), with loss of appetite, headach, and depression of spirits, a feeling of weakness, pain in different parts of the body, particularly the back and limbs ; her countenance appearing of a pale yellow cast. The sense of coldness, nausea, &c., were as usual struggled under for nearly a week ; but at last, restlessness and delirium, particularly during the night, with intolerable headach, necessarily confined her to bed, the pulse hard, and varying from a hundred to a hundred and twenty in a minute, with great heat of the skin, and constant thirst. In this

case the excitement prevalent in the commencement of this fever, was evidently aggravated by previous circumstances ; especially a diet more full than at present can be obtained by the labouring people. This young woman caught the disease from the family in the sunk area, (2) ; and the infection was as much as possible prevented from spreading further in the family, by removing her on the appearance of the precursory symptoms. She recovered ; but the lady on whom she attended, passed through the disease under a milder form in the beginning of June.

4. In the family occupying the garret, consisting of eight individuals, the disease was not manifested until soon after their removal to another dwelling at the Whitsunday term ; and in July, three had passed through the disease in the usual form, with the symptoms more or less aggravated according to circumstances. Of the whole number infected in the family (1) in the Cowgate, I have hitherto been unable to obtain an accurate report, being under the necessity of relinquishing the charge of them at the last term ; but the domestic origin of the poison cannot be

doubted ; and if any of the children escaped the disease, it can only be accounted for by their dispersion for the purpose of begging. It is worthy of remark, that however degrading a state of mendicity is, both to a community and those engaged in it, common or professed Beggars are generally less liable to febrile infection than the more industrious, and now, alas ! the most dejected, portion of the people. The diseases of professional beggars, are those of indulgence and debauchery. These people are never oppressed with care or anxiety about the future ; and having no fixed place of abode, however filthy in their persons, Typhous poison among them can scarcely accumulate ; for, roaming perpetually during the day in the open air, and sleeping soundly on the fresh straw of the farm-yard during the night, the poison would seem to be dissipated as soon as emitted from their bodies. In (2) these instances, then, we have facts which strongly demand attention : Typhous poison originating evidently from the bodies of a number of persons crowded in a damp close apartment in a sunk area,—speedily ascending to the family immediately above,—soon after infecting the family in

the garret; and in the course of ten weeks, the whole TWELVE INDIVIDUALS INFECTED UNDER THE SAME ROOF. This is a circumstance requiring very little comment. "*Tua res agitur,*" &c.

In other parts of the city, similar instances might be added, illustrating clearly the important fact, of THE DOMESTIC ORIGIN OF THIS CONTAGION. It is not, then, in jails, ships, and hospitals only, that this terrible poison originates, but in the midst of an unfortunate and crowded people, whose misery in this respect, the public interest loudly demands us to succour.

Already (October) various cases, some of them fatal, of this fever have occurred in the families of the more opulent; and unless farther measures are instantly adopted, it is in vain to flatter ourselves with perfect safety from the various well known means of merely arresting its progress. The means of effecting this, recommended by LIND, HAYGARTH, STANGER, CARMICHAEL SMYTH, and other justly eminent Physicians, are certainly so far valuable in preventing the PROGRESS OF CONTAGION ALREADY FORMED; but so long as numerous SOURCES OF THIS POISON are permitted to exist in our crowded cities and towns, such means can be

considered in no other light than palliatives *. In some late works on this subject, the various causes supposed to contribute to the production of contagion, by distracting the attention of the public from its real source, have indeed had an unfortunate effect. Nothing can be more praiseworthy than the instant removal of "putrefying vegetable and animal substances from the dwellings of men," especially in large cities. "Insufficient clothing, the want of cleanliness, and proper food," are certainly very hurtful, as inducing predisposition to diseases in general ; but the real sources of Typhous contagion, are THE CROWDED AND CONTAMINATED DWELLINGS OF THE UNFORTUNATE. It is to these in like manner, that the public must direct their vigilance. The axe must be laid to the root of the tree, instead of merely lopping off the branches. Nothing cer-

* Since these Observations were in the press, the Society for the Destitute Sick, with their usual undeviating benevolence, have circulated in the Newspapers an abstract of the means of prevention : but to strike at the root of the evil, these worthy men must be enabled to proceed farther.

tainly could be more laudable than the providing the labourer during last winter with employment ; but the public interest loudly demands an equal attention to his LODGING, especially in those resorts of misery and disease, the public sleeping places,—*the dormitories!* One is ashamed to restore a word which ought to have disappeared for ever, with the abominable filth and superstition of Monks ! It is strikingly singular, that although the prevention of ship, camp, and hospital fever, has occupied the strictest attention of the proper authorities, no adequate regulations, from an accurate induction of facts, have hitherto been established for the complete extinction of this terrible poison in our large cities *. It is insufficient to state, “ The

* “ As we are perfectly acquainted with the causes of the Jail contagion,” observes a most respectable Physician †, “ we could certainly prevent its formation, provided the means of doing so were always in our power ; but as we cannot command these, our next object is to correct or destroy it when formed.” This observation is too true ; but it is equally true, and would be certainly wiser, to destroy its source.

† See CARMICHAEL SMITH’S work on the Effect of Nitrous Vapour, in preventing and destroying Contagion.

air is depraved or corrupted," as some have rather vaguely observed. The atmosphere, in close apartments, may be depraved with various human effluvia. Carbonic acid, and nitrogene gases, extricated during respiration and perspiration, thus "vitiate the air;" but we know that these gases are certainly distinct from Typhous poison, compared with which, they may be considered as harmless; for it is impossible, under ordinary circumstances, that they should be accumulated in sufficient quantity to be dangerous.

In order, therefore, if possible to concentrate the attention of the public to this important subject, it is proper to notice generally the opinions that have prevailed in the schools, on the nature of this species of contagious fever. In the time of SYDENHAM, it was generally supposed by Physicians, that pestilence appeared in England once in about thirty or forty years; but as vague hypothesis, the great bar to the advancement of truth, has, at all times, been the bane of a profession, difficult in theory above all others, the source of infection in this and other forms of Typhus fever, was supposed to float from

a distant country through the atmosphere, and consequently the real source arising from poverty and its necessary effects on the people, was scarcely even suspected. HIPPOCRATES, indeed, one of the best observers of nature, had, at an early period, inculcated on Physicians the necessity of a close attention to the condition and manner of life of the people ; the nature of the soil and situation of cities ; the purity of the water, and general state of the atmosphere ; all of which circumstances are well known as powerfully influencing the general health of mankind*. But the genuine works of this Philosopher have, as usually happens, been obscured by a host of commentators. Fevers and diseases of the worst kind prevailed, he observed, during the “ *annus austrinus pluvius, venti perpetuo quiescentes,*” not surely from any imagined mysterious quality in the south wind, but because this, among other conditions of the atmosphere, was strongly acces-

B

* De Aëribus, Aquis et Locis, et passim (rec. Albertus de HALLER.)

sary in exciting the various semina of diseases into action. Even Lord BACON, who did more for the sciences in general, than all who preceded him, has, by obscurely interpreting HIPPOCRATES, sanctioned this error *, which, as a subject of hypothetical speculation, or dogma of the schools, would have merited little notice ; were it not that a belief in its reality, even in modern times, must have had the worst practical effects. For, supposing that Typhous or pestilential poison were really capable of being communicated from a distant country, through the atmosphere, it is evident that no conceivable precaution could obviate its influence ; and Physicians, instead of guarding the public against its real source, might, with the ignorant and superstitious people of Asia, look with stupid apathy on its approach, as a visitation of what they term Providence, and consequently irresistible by human means. This opinion of an extensively contaminated atmosphere, seems, however, to have been occasionally opposed by the adherents

* *Histor. Ventorum*, v. iv. 4to. 428. *Auster saluberrimus marinus, a continente magis morbidus ;—nobis, si flaverat, paulo diutius ex sudo, absque pluvio, valde pestilens est.*

of another, equally absurd and mystical,—“ pestilential exhalations from the earth.” The dreadful catastrophe which occurred during an assize held at Oxford, commonly termed the Black Assize, is attributed by CAMDEN to this imagined source ; but the real cause, as pointed out by the sagacity of Lord BACON, strongly illustrates the effects of Typhous poison. “ The most pernicious infection,” says this great man, “ next to the plague, is the smell of the jail, when prisoners have been LONG, CLOSE, AND NASTILY KEPT, whereof we have had in our time, experience twice, or thrice, when both the judges that sat upon the trial, and numbers of those that attended the business, sickened upon it and died *.”

CAMDEN, however, instead of exposing this terrible result of ignorance and neglect, vaguely observes, “ The judges, gentry, and nearly all that were present, to the number of three hundred, were killed by a poisonous steam thought to have broken from the earth †.”

B 2

* Sylva, i. cent. x. 328.

† Annal. Reginæ ELIZABETHÆ.

These several instances alluded to by BACON of the accumulation of this deadly poison, through the grossest neglect, seem however to have had very little effect in guarding the public against its recurrence ; for Justice FOSTER records a similar occurrence from the same cause, so lately as 1750. “ At the Old Bailey, in a crowded court, during very hot weather, many people present at Clark’s (a prisoner’s) trial, were seized with a malignant fever, from which few recovered *.”

In attending to the evident bearing of these striking facts, it must appear singular that the popular error of “ a pestilential atmosphere” (Malaria) should have been revived during the late prevalence of contagious fever in various parts of the United States of America †. But indeed it is impossible to account for the groundless opinions so generally entertained on this subject, otherwise than

* On the Crown Laws, p. 74.—Very probably the unfortunate fate of Mr Justice OSBURN and others, in Ireland, a few months since, happened from this cause?—See Commercial Chronicle, September 30. 1817.

† Dr CALDWEL’S Oration, Philadelphia, and HAYGARTH’S Letter to PERCEVAL, App. iii.

that fear, naturally incident to unforeseen danger, by weakening the mind, renders it passive and credulous. Is it possible otherwise to account for the respectable members of the Academy of Medicine of Philadelphia, gravely attributing, by attested documents, the origin of this terrible fever, to noxious "air generated from spoiled coffee and pepper, casks of wine, which had been spoiled in the hold of a ship," or from a few bushels of "rotten potatoes" in the same state? But, however inadequate these imagined causes were to the production of this fever, which has been clearly traced by CHISHOLM* to Contagion imported from the West Indies; opinions, equally unsupported, are still prevalent among Physicians. Thus, contagious fever is, by respectable modern authority, said to be "the result of putrefaction, one of those general fermentative processes, to which water, as well as all vegetable and animal substances, are liable under certain circumstances;" and even "cold, intemperance," &c.,

B 3

* Essay on the Malignant Pestilential Fever of the West, Indies, 2 vols. 8vo.

however hurtful in other respects, are, on equally improbable grounds, ranked among direct causes of Typhus fever, none of which can possibly generate that specific poison, which produces this fell disease.

That exposure to the effects of animal putrefaction is highly deleterious to health, nature herself, indeed, points out, by the intolerable smell accompanying this process, which, in most people, excites nausea, headach, and loss of appetite. FOURCROY observes, that the grave-diggers of Paris are pale and unhealthy, from frequent exposure to breathe the exhalations from the dead * ; and we know there are instances of vertigo, fainting, and

* Mem. de l' Academie des Sciences, 1789. GALEN attributes pestilence to the putrid exhalations of the uninterred dead after a battle. A Dutch Physician, whose unpronounceable name I have forgotten, attributed the same disease to the exhalations from a dead whale, left on the coast of Holland. A French author, to cattle dying on board a ship. Others, more learnedly, to marsh *μιασματα*, which in plain English means Poisons imagined to exhale from marshes.—These last thus confounding Contagious with Remittent fever, a distinct disease, resulting from the chilling effects of damp acting on the heated and relaxed body.

even death having been occasioned by approaching too nearly the putrefying human body, especially on the rupture of the abdomen ; and thus the too common practice of late interment, especially of those dying of contagious fevers, and burying the dead in the centre of cities, or in churches, cannot be too strongly condemned. That these dire effects are not exclusively produced by the gases extricated during putrefaction, is highly probable, from the instances on record, of the most deadly form of disease being occasioned by accidental inoculation of the sanies of the putrid human body into wounds, during dissection.

NECESSITY OF DESTROYING THE ORIGINAL SOURCES OF THIS POISON.—MEANS SIMPLE.

1. ON the whole, then, it appears that Typhus fever (*τυφως, τυφω ardeo*) is a disease originating from the re-absorption of a specific poison expelled from the human body, even in a state of health, allowed to accumulate not only in jails, ships, hospitals, &c. but in the close and crowded dwellings of the people. Of its precise nature, as of many other bodies, we know nothing but from

its evident effects. It appears to be capable of being either suspended, or, as some suppose, dissolved in the atmosphere; but however this be, infection is communicated, more or less readily, and virulently, according to the concentration of the poison. It is on this principle only, that we are enabled to account for the greater malignity of the poison communicated by prisoners kept in close and contaminated jails, or by persons crowded into ships, hospitals, and similar situations*.

2. That these crowded and close dwellings, and especially those resorts of the destitute, the public lodging-houses, ARE IN FACT SO MANY CONSTANT SOURCES OF DOMESTIC CONTAGION; and, therefore, however indispensable the strict enforcement of quarantine and other means undoubtedly are, to prevent the access of contagion from abroad, it is surely no less strongly incumbent on us, by every possible means, to prevent the inevitable formation

* It is a singular fact, that prisoners themselves, when gradually habituated to this poison, become, to a certain degree, capable of resisting its deadly action; whilst they instantly communicate it to those accustomed only to a pure atmosphere. Thus too, people, particularly children, from the country, are more liable to infection, than such as reside in cities.

of pestilential poison IN THE MIDST OF OUR UNFORTUNATE POOR AT HOME.

3. For although, during the months of June and July of the past summer (1817), the cases of fever in this City and vicinity had considerably decreased, the contagion has continued insidiously to extend during August, September, and October, from the dwellings of the poor, to those of the more opulent ; a far MORE THAN USUAL NUMBER of whom have, during the autumn, fallen victims to the more malignant forms of the present epidemic.

4. These facts, then, loudly demand the attention of the public, and shew the necessity of taking proper measures, not merely for preventing the farther progress of contagion, already in existence, but for exterminating the SOURCES OF THIS POISON ALTOGETHER.

5. The well known rules for preventing infectious fevers, are most valuable, so far as they extend : as they apply, however, SOLELY TO EXISTING CONTAGION, they cut off the branches only, but leave the roots of the evil UNTOUCHED.

6. It is clear, then, that in order to exterminate this terrible poison, we must proceed farther ; and

while we strenuously attempt, by every practicable means, to exterminate the CONTAGION ALREADY FORMED, let us no longer allow its CONTINUED REPRODUCTION in those quarters, which, by timely precaution, might have remained uninfected. Even policy demands the public attention to this great object. The contagious nature of this fever, even under its mildest form, tends rapidly to the increase of that poverty, and those privations, under which it has originated; and admitting that the complete extermination of this disease must be necessarily attended with some degree of expense to the more opulent, let it be remembered, that their own health and safety is indisputably connected with that of the poor.

7. To obtain this object, there is no need of adding to the number of public or private institutions; the two Dispensaries, and the Society for relieving the Destitute Sick, being perfectly adequate to the purpose, were they to concentrate their efforts, and the public to supply the necessary means.

8. In visiting the dwellings of the poor, professionally, it is impossible to avoid the conviction,

that many of their sufferings might be averted by instructing them in the proper method, with occasional slight assistance towards their own efforts ; and were the various societies for assisting the unfortunate and industrious poor, to co-operate with the Society for the Destitute Sick, instead of weakening the efforts of all, by acting separately, this most important object might be attained with comparatively small expense.

9. This co-operation, to become effectual, requires no alteration of the present constitution of these Societies, especially with regard to the general management of their respective funds.

Above all, it is from the superintendence of the Ministers of Religion, that complete success in this, as in similar efforts in behalf of the people, can be expected. It is the peculiar excellence of the Presbyterian form of religion, that the Clergy do not form an order distinct from the body of the people, with whom, indeed, they are identified by the respectable institution of Parish Elders. These worthy men, in the course of their visits to the people of their district, can at once give notice to the minister and parish, and district-committee, including of course a Physician and Surgeon, of the

existence of such crowded and close dwellings, and the means of necessary regulation, which are few and simple, may at once be put in practice, viz.

1. The number of beds and individuals in one lodging-room to be instantly reduced, when disproportioned to the size of the apartment, and an additional lodging provided.

2. To inculcate the necessity of a free admission of air.

3. The washing with a ley of potash and water, the whole furniture and walls; &c. the walls to be white-washed with lime and water.

4. A supply of coals to be afforded, for the purpose of forcing ventilation. This is the more necessary, as during last winter, it clearly appeared, that the noxious closeness of these apartments, was in a great measure induced, by an anxiety to prevent the entrance of cold air; of the necessity of which, to their health and comfort, it is extremely difficult to convince the people.

5. To afford (what is in fact also necessary to induce them to admit the air) an adequate supply of blankets and flannel, &c. These simple precautions, with others, according as circumstances re-

quire, would at once prevent the formation of this fell poison.

It is pleasing to reflect, that under present afflicting circumstances, there is a well-founded expectation of an improvement in the state of the labouring people, from an increased demand for work, and comparatively cheaper provisions, during the ensuing season.

MEANS OF ARRESTING THE PROGRESS OF THE CONTAGION ALREADY FORMED*.

1. It is useless to speculate on the precise “period when a patient becomes capable of communicating the infection.” On the first appearance of the precursory symptoms, the sense of chilliness, succeeded by heat, headach and nausea, and loss of the usual appetite, slimy tongue, &c. immediate separation becomes necessary.

* These rules must have occurred to every Physician conversant with contagious diseases. They are here offered as memoranda, dictated by repeated experience of their utility. In several respects, they agree with those of LIND, HAYGARTH, and STANGER.

2. The more opulent, must at once retire to a large, well-aired chamber, with a fire-place. This chamber should, if possible, be in the upper floor of the dwelling; and the bed, without curtains, should be so placed, that the current of air, from an open window, may pass from the patient's body immediately to the fire-place, that the attendant on the sick may not be exposed to the infected current, but may remain generally on the opposite side. Poorer patients, of course, must at once be sent to the Infirmary, or a HOUSE OF RECOVERY *, and placed in an open ventilated apartment, dedicated solely to patients under Typhus fever.

3. The infected clothes of the patient, to be instantly taken off, and either thrown into water, or destroyed, and the whole body washed with a sponge dipped in water; the temperature of which, can only be regulated by the temperature of the surface of the patient's body, of which the medical attendant must be the sole judge. Clean bedding, &c. of course to be supplied.

* So long as the Royal Infirmary can properly accommodate the patients under the present epidemic, there is of course no need of an Institution of this kind at Edinburgh.

4. The natural discharges to be instantly thrown into a tub of cold water ; and where it can be done, buried under ground, to prevent danger from their noxious exhalation.

5. The apartment to be repeatedly disinfected by the means stated in the Appendix.

6. The exhalations from the body, and especially from the lungs, of the patient, to be avoided as much as possible by the attendant.

7. The attendant must not be permitted to associate with the uninfected members of the family ; every thing necessary for whom, and the patient, being brought to the door of the sick room as wanted ; and every vessel used by the patient placed in cold water, and washed before it is sent from the room.

8. There is an opinion prevalent among the people, that during the convalescence of a patient, they may freely associate with him ; and the consequence is, that they not only run great risk themselves, but, by fatiguing the patient, endanger a relapse. This gossiping must be strictly prohibited. As the infection generally spreads by the mistaken kindness of friends, all unneces-

sary visitors must be peremptorily prohibited access to the sick.

9. The necessary change of linen and bedding during the course of the disease, must of course be regulated as circumstances demand. Perspiration must not be rashly checked by damp or cold linen.

On recovery, the walls of the apartment, the furniture, &c., must be washed, with a hot ley of potash ; afterwards, the walls of the houses of the poor, white-washed with lime and water ; and the process of disinfection repeated, in a manner more powerful, than can possibly be admitted of in the presence of the sick *.

CURE.

FROM what has already been observed of the varying shades of character in the present epidemic, it is clear, that the means of cure must vary with these ; and in order to illustrate this, I shall state from my notes, another instance of the

* Appendix (3.)

mildest form in which the disease has occurred.

An industrious sober man, a tailor, residing in Todrick's Wynd, a narrow lane leading from the High Street to the Cowgate, applied to the Public Dispensary in May last. He had felt for some days a feebleness and loss of appetite, without any particular pain,—coldness succeeded during the night, by unusual heat, and disturbed sleep, without any marked delirium. Anxious to support his family, he continued during the day at his work, under a sense of lassitude, and depression of spirits. When at length confined to bed, the natural heat was scarcely increased. His pulse beat about eighty-four in a minute. He complained rather of a heaviness than pain in the head. As he was generally costive, this was remedied by gentle doses of castor oil, accompanied with drink of thin gruel, acidulated with cream of tartar, sweetened with sugar; and without any other medicine, except two brisk doses of subm. hydrarg. mitis, in the commencement of the disease, he gradually recovered; a general moisture over the whole skin taking place about the ninth

day from the time of his being confined to bed, on the first appearance of which, he was allowed, along with weak veal soup, currant-wine whey, or the same wine diluted with water, at occasional intervals. This mild form of the fever occurred chiefly among the more opulent; and when, on the first appearance of the symptoms, the patient was at once separated from the rest of the family, and placed in a well aired room, the disease spread no farther. But where this rule was not strictly adhered to, the whole, with occasional exceptions, passed through the disease with the symptoms more or less aggravated. In the families of sober and industrious tradesmen, in comparatively easy circumstances, the disease has been equally mild, where their dwellings admitted of the necessary ventilation by cool air; a remedy in itself far more valuable, in removing the increased heat, and parched state of the surface, slimy tongue, and concomitant thirst, than all other remedies whatever, in this form of Typhus, absurdly named Low Nervous Fever, when unfortunately protracted by improper treatment.

One of the greatest errors here, is to administer wine and nourishing diet during the first period of

the disease, with the view of counteracting the imagined debility, at a period when, in fact, the whole system, oppressed by the action of the infecting poison, must be overwhelmed by additional stimulants, and too nourishing diet, which strongly increase all the accompanying symptoms; especially the heat and dryness of the skin, thirst, headach, delirium;—converting the milder, into the most dangerous petechial form of the disease: the only nourishment nature demands at this time, being afforded by toast and water, thin gruel, fresh ripe fruit, and, above all, pure air.

In following this simple method of cure, it is plain no discovery is claimed. “Frequently,” says SYDENHAM, “when called to persons of low circumstances, I ordered them to do nothing else, after bleeding and vomiting, when necessary, but to keep their bed, during the whole course of the distemper, and to sip only barley-water gruel, and the like; to drink moderately of small beer, to quench their thirst, and to take a glyster of milk and sugar every day. Towards the end of the fever, I allowed them now and then a little stronger malt-liquor,” instead of “cordials;” viz. the monstrous alexipharmic substances,

the *Venice Treacle*, and *Cordial Water of Saxony*, &c., with which all-powerful fashion then rendered it necessary to drench such as could afford to be poisoned. For, thousands of human beings have been actually sacrificed to that MOLOCH of prejudice and false theory, DEBILITY, THE CAUSE OF FEVER, which, under various shapes, has for centuries haunted the imagination of Physicians; only destructive and premature libations of wine and Jesuits bark have become in our times the legitimate successors of the alexiterial stimulants of past ages.

THE MORE AGGRAVATED FORMS OF THIS EPIDEMIC,

commencing with every symptom of the Synochus of CULLEN, are to be met with under the same roof with his Typhus gravior; and in one instance Typhus icterodes occurred, which in a few days carried off the patient. In others, the yellowness existed from the beginning in a slight degree; but the complete suffusion occurred after the violence of the disease had subsided, from errors in diet. In every case of this kind, the first and most urgent remedy is the

FREE ADMISSION OF PURE AIR;

without which every other remedy is useless. The admission of pure air into the apartments of the sick is indeed equally necessary to the safety of the Physician and attendant. It carries off the constantly accumulating poison emitted from the body of the sick, diluting and dispersing it, along with the various noxious animal exhalations ; and thus, by cherishing and contributing to restore the healthy action of the system, the morbid heat of the patient's body is not merely dissipated, but prevented from being reproduced. In calm and warm weather, the air is most easily renewed by suspending a large fan, such as is used in the East Indies, near the bed of the sick, and giving it frequent motion. A piece of thin canvas, stretched by means of a light frame of wood, answers this purpose completely.

COLD

is, however, applied with the most powerful effects, through the medium of water. The revival of this ancient and invaluable practice of the Greek Physicians, we owe to the skill and ability of Dr W.

WRIGHT of this city, late Physician to the Army of Sir RALPH ABERCROMBY in the West Indies *. For although, as he observes, this method was practiced by CYRILLUS of Naples with the best effects †, and, according to DE HAEN, successfully followed at Breslaw in Silesia, in 1737 ‡; still, from the prevalence of the various absurd hypotheses of the Schools, this remedy had fallen into complete neglect. Dr WRIGHT himself having caught the infection of Typhus from a sailor whom he attended, on his passage to England, had the first striking proof of the efficacy of the cold-bath in curing this disease. Under the usual marked symptoms, he, in the common routine of what is termed the Tonic method, took opium, &c. and a drachm of Peruvian bark in powder every six hours successively, a glass of Port wine now and then, with no alleviation of his feelings, &c. pain in the forehead, starting, restlessness and delirium, &c. He felt himself relieved even by the cool air when

* *Vide* Remarks on Malignant Fever, by W. WRIGHT, M. D. F. R. S. L. & Edinb., &c. Medical Journal, 1786.

† Philosoph. Transact. vol. xxxvi., 410.

‡ Acta Physico-Medica Naturæ Curios., t. x.

on deck, which encouraged him to proceed. "I laid aside my clothes," says he, "and had three buckets full of cold sea-water thrown on me at once. The shock was great, but I felt immediate relief; a fine glow and diaphoresis succeeded. Towards evening, the febrile symptoms threatened a return: the same means were repeated, with the same good effects; and for the first time I had a good night's rest. Next day, no fever, but slight pain in my thighs, remained. I used the bath twice, and on the third day every symptom vanished. Another passenger, Mr KIRK, was infected, and very speedily cured in the same manner." Every one knows the confirmation of the efficacy of this practice, first afforded in this country by the talents and genius of the late Dr CURRIE of Liverpool*. But, like other powerful remedies, the application of the cold-bath is liable to abuse; and, as if it were intended to bring it into discredit, it is now vaunted in our daily newspapers. But, to insure success, it is not to be committed to the unauthorised rashness of

* See Reports on the Effects of Cold Water, &c.

popular quackery; of the fatal consequences of which there is abundant evidence. Some years since, I had ample proof of this: The cold affusion was used in the absence of the Physician, when the period of strong excitement and consequent heat had subsided. The patient had instantly a relapse, and died under unconquerable chilliness, and comatose delirium. But this is not the only instance of the fatal abuse of one of the most beneficial agents in nature, when directed with skill, though an instrument of incalculable mischief in the hands of rashness and ignorance. Dr CURRIE has strongly objected to the use of it during a state of perspiration, when the heat of the body is naturally reduced; and I must add, that the bath is equally dangerous when the morbid heat is but slightly and accidentally increased near the crisis of this fever. The proper degree of cold is, at this advanced period, much more safely and beneficially applied, by partial bathing with a sponge, or through the medium of the air freely admitted into the chamber of the patient, guarded, of course, from the current. The use of the cold-bath, then, must be used with the utmost caution, guided invariably by the existing temperature of the body

of the sick, as pointed out by the thermometer, and under the direction of the Physician, both as to its extent, and the period of the disease. There is another most important exception to the application of cold water, even partially, to the surface of the body. Among the various forms, under which contagious fever at present occurs in this city, we meet with instances of the disease combined with catarrhal, and even pleuritic, pneumonic, and other symptoms, more or less strongly marked of visceral inflammation. Under such circumstances, to apply cold water to the surface of the body, however much the natural heat might be increased, is most certainly hazardous. But in such cases, again, cool dry air can be substituted with the utmost relief to the patient. Among others which might be stated, I find in my notes, a brief statement of a case of this complex form of the present epidemic occurring in May last: A female, sixty years of age, residing in Skinner's Close, whom I had formerly attended under pleurisy. Along with the most strongly marked symptoms of Typhus fever, she had a short cough, oppressed breathing, and a sharp pain in the side, particularly on inspiration. I had her

bled freely at the commencement of the disease, which certainly relieved both the headach and occasional delirium, and reduced the violence of all the concomitant symptoms. She recovered.

BLEEDING,

however, is a practice in this fever which, with few exceptions, seems of doubtful utility ; at any rate it must be had recourse to early in the disease, before the action of the poison has prostrated the strength of the patient, or else omitted altogether. The opinion of my venerable friend Dr WRIGHT, is decidedly against bleeding at all in this disease. His great experience, no doubt, occurred between the Tropics, where the climate powerfully accelerates the fate of the sick, and the rapid career of the disease does not admit of bleeding. Here, and towards the north of Europe, the action of the poison is generally at least, less rapid. But, at any rate, the great objection to this practice, supposing it were in other respects proper, is, that we are seldom called in at the BEGINNING OF THE DISEASE, WHEN ONLY the lancet can be used with PROBABLE SUCCESS. But there is hap-

pily another remedy, which, in my experience at least, can be used with invariable advantage, when bleeding would be attended with the utmost hazard.

MERCURY.

THE free use of this invaluable remedy, in the very worst forms of acute diseases, would seem, like many of the most useful of the sciences, to have originated in the East. The late celebrated Dr LIND of Haslar, many years since, in conversation with my friend Dr WRIGHT, told him that he acquired his information on this subject from Mr PAISLEY, a Surgeon to the army in the East Indies; from whence, on the justest principle of analogy, the practice was subsequently introduced into the western hemisphere. Dr CHISHOLM, a most able Physician*, in spite of the most powerful opposition and prejudice, along with Dr

* See the celebrated work, "On the Malignant Pestilential Fever, introduced into the West Indies from Boullam on the Coast of Guinea," by CH. CHISHOLM, M. D. Inspector-General of the Ordnance Medical Department in the West Indies, vol. i. p. 418.

WRIGHT, succeeded in establishing the use of this best of all remedies in the contagious Yellow Fever, lately so mortal to our army in the West Indies. Mercury, indeed, had been used with the utmost benefit in certain acute diseases, in the state of Massachusetts near a century ago; and was long afterwards administered in such diseases by Dr SMITH of Savannah, as we are informed by Dr WRIGHT, before he himself began to administer it in Jamaica in 1764. To the judgment and talents of this venerable man, then, are we indebted for the establishment in the practice of physic of two of the most valuable of all remedies, in a disease which differs from the Plague only in form. On his authority, I first began the use of it in the worst forms of contagious fever occasionally occurring in this city, and, when early administered, WITH CONSTANT SUCCESS, ESPECIALLY WHEN COMBINED WITH THE NECESSARY ACTION OF COLD, the extent, as well as the medium of which, being of course, regulated by the circumstances of individual cases. One of the great advantages of the use of mercury, under the worst forms of this fever, is, that where cold bathing, even partially with the sponge, can scarce-

ly be ventured on, mercury may be used with the best prospect of success. Some years since, the contagion of Typhus appeared in a boarding-school above fifteen miles from this city. Here I attended one patient, a boy twelve years of age, on the first week from his confinement to bed. Not being able to remain during the next day, although the greatly increased heat, comatose delirium, foul tongue, &c. would have clearly warranted the cold-bath; yet there was not only the usual strong prejudice against a practice then new in this country; but, as the period of repeating, and temperature of the application must have been necessarily trusted, in my absence, to the attendant, I could not venture on its use. There could, however, be no objection to the use of mercury, the bowels being costive. Ten grains of subm. hydr. mitis were instantly administered in currant-jelly, and repeated next morning; a large quantity of black fetid matter was discharged from the bowels. The submuriate* was ordered to be repeated in

* The submuriate, I believe generally found in our shops, is the sub. hydrarg. præcipitat. of our last Pharmacopœia, a formula which we owe to the accuracy of SCHEELE. The

smaller dozes every night, and in a few days the edges and tip of the tongue became clean and moist. This favourable change began from the second day of the use of the medicine. The patient roused from the comatose delirium, and gradually a soft and gentle moisture appeared on the surface of his body. The morbid heat disappeared; and a healthy secretion being restored, nature, relieved from torpor and oppression, speedily resumed her power; for, which affords a singular contrast to the effects resulting from what is termed the Tonic practice, even when successful, the patient, under this treatment, instead of a state of protracted convalescence, very soon acquires his usual health. When called in to a patient immediately, on the first attack, which seldom happens, I should instantly order an emetic of Vin. Tart. antimonii, in small dozes, at repeated short intervals, as the best preliminary to a cure. The practice of giving emetics was highly recommended by the celebrated TOURNEFORT, in the plague of Con-

tedious and operose process for the preparation of Sub. hyd. mit. is in fact so much lost labour, and not without danger to the operator.

stantinople. Indeed the nausea occurring in this and other forms of Typhus, points out this remedy, at least as preparatory to others more certainly efficient, if not as a mean of expelling the poison, which has been sometimes suspected to have entered through the saliva into the stomach. Dr LIND thought, that occasionally a gentle diarrhœa had ejected the infecting matter. At any rate, no medicine acts with more effect on the alimentary canal than the mild submuriate of mercury. When, however, a severe flux occurs, as sometimes happens in this fever, this medicine must be combined with small dozes of opium; or, what is still better, introduced by friction into the edges of the feet and ancles, mixed with a proportion of fresh lard, at least twice in the twenty-four hours*. This friction, of itself, is of considerable use; as it not only agreeably soothes the feelings of the sick, but tends to re-

* The formula, "R. Unguenti simplicis vel adipis suilli, partes octo; Subm. Hydrarg. præcip., partem unam," was preferred to the common blue ointment, as equally certain in its effects, and far more cleanly in the application. The proportion of mercury is increased according to circumstances.

store the healthy action of the surface of the body, and frequently procures sleep when opiates might be injurious. As to the popular objection to the combined use of mercury and cold water; this practice, like that of administering either separately, may certainly, in the hands of ignorance, be liable to abuse. Even the partial use of sponging with tepid water or vinegar, would be attended with danger, when the effects of the mercury begin to be manifest. But so long as the dryness and morbid heat of the skin remain, the action of cold, whether applied to the body, by the medium of water or the atmosphere, is necessarily beneficial in reducing the temperature of the body to the healthy state, viz. nearly to 98° of FAHRENHEIT's thermometer; after which, the farther abstraction of heat becomes not merely useless, but positively hurtful; more especially during the administration of mercury, which, of itself, so powerfully acts on the perspiratory and various secretory organs of the body, as in fact to supply the place of the usual diaphoretic and cathartic medicines, with effects infinitely more certain and extensive over the whole animal system. It is perhaps unnecessary to observe, that, during the

course of this fever, similar precautions must regulate the temperature of the

DRINK

allowed to the sick, Cold water, or thin gruel acidulated with orange or lemon juice, the tartarous acidulum, or an infusion of apples in boiling water, and allowed to cool, generally afford most pleasant, as well as useful drinks; and ripe fresh fruits, such as strawberries, grapes, oranges, &c. afford sufficient nourishment; as it is only towards the crisis of the fever, when the violence of the disease has greatly exhausted the strength of the sick, that nature requires additional support. To this period the change is frequently gradual, and the crisis unattended with any marked symptoms. The pulse becomes almost imperceptibly softer. The heat of the surface, unless by the immediate agency of cold, gradually diminishes;—acquiring that healthy feeling which the experienced Physician at once perceives. The period is now arrived when a state of comparative abstinence must be gradually departed from. At this time the patient is often incapable of swallowing, until the administration of some gentle stimu-

lants, such as a few drops of sulphuric ether dropped on a piece of sugar, rouses the torpid senses into action. Tepid currant wine whey is an agreeable and useful drink, and the quantity of wine allowed is to be increased according to circumstances, and repeated occasionally.

Although the practice of blistering was formerly carried to a most unreasonable extent* in this species of fever, it is undoubtedly of the utmost use when pointed out by the urgency of particular symptoms. Small doses of opium repeated at proper intervals, powerfully restore the exhausted strength of the patient; and with the same view, Cinchona bark, and similar medicines, especially infused in wine; and camphor in the form of mixture; &c. are highly useful in gradually restoring the patient to health.

* "Soleo ego," says RIVERIUS, "in magna morbi sævitia, quinque locis (vesicatorium) admove: Cervici, utrique brachio, utrique femori, &c. cum felici successu." Opera, p. 541. ETMULLER was equally addicted to this practice.

APPENDIX.

CHEMICAL MEANS OF EXTINGUISHING INFECTION.

“THERE is not,” as LIND long ago observed, “a more dangerous mistake, than to imagine there can be no infection unless where particular malignant symptoms occur. In the generality of cases, even of jail fever, the symptoms resemble those of what is termed Low Nervous Fever ; which, though unattended with such symptoms, greatly injures the constitution of those who recover.” Many have, in fact, fallen victims to this too generally prevalent error. Now, even where there is reason to doubt the contagious nature of an epidemic, (and in the present case there is no doubt), surely, as the expence is so trifling, it would be wrong to neglect a precaution so easily taken as the disinfecting the apartment. Let us then once more recollect the importance of using every means of exterminat-

ing an enemy so insidious, and at first apparently so mild and harmless in its approaches, that some have presumed to deny its infectious nature altogether. These vain triflers have attempted, by endless distinctions and names, to throw light on a subject in which they have bewildered themselves, and, in some instances, confounded the minds of ingenious youth, some of whom have fallen sacrifices to their belief in speculations, the folly of which is by far the most harmless ingredient.

DIEMENBROEK *, a man of most respectable talents, maintained an opinion, not quite so mischievous, That the sources of contagion became of themselves extinct in a period of twelve months. He quotes a number of certainly singularly specious instances, bearing apparently on this point: But it is scarcely credible, that, to demolish his own opinion, it is only necessary to quote himself. He mentions an instance of pestilential fever arising from bedding imbued eight months before with this specific poison. But, is it not clear, if the poison remained in full activity for eight months, that, under the requisite

* De Peste, lib. 4. hist. 119.

circumstances of being kept close and unexposed to decomposition, it might have remained in activity for eight months longer, or for as many years? Is it not then the height of weakness and credulity to trust to these speculations, which one would think, could scarcely be credited by their authors themselves; especially where so much human misery is the result of a false decision? That the poison has, in numerous instances, apparently exhausted itself, or ceased to act; or which is more likely, has been decomposed by some unknown agent, is certainly true; but so long as we are ignorant of the true cause of this singular circumstance, it is our business to trust nothing to chance where such unparalleled interest is at stake.

VENTILATION, under certain circumstances, dissipates and dilutes this active poison, but such is the strength with which it adheres to various, particularly porous bodies, that it would be dangerous to trust to this alone. The hulks of ships have been known to communicate the infection after long exposure to the cold air and rain.

SMOKE OF TOBACCO,—the vapour of CAMPHOR,—VINEGAR, and of the VARIOUS RESINOUS BODIES, formerly so much in vogue, are now known

to be worse than useless, as they inspire a false security. The STRONG HEAT OF AN OVEN applied to bedding, &c. and the vapour of SULPHUROUS ACID, CLOSELY CONFINED, with the various infected substances, were by far the strongest of the agents formerly used; but to modern chemistry we owe agents of infinitely more efficacy in decomposing this and other morbid poisons.

(1.) VAPOUR OF NITROUS ACID.

Take of Sulphuric Acid, two ounces.

Nitrate of Potass, three ounces.

Fill a small iron pot four fifths of its capacity, with dry sand; and having placed in it a large china or stone tea-cup, surround the pot with live coals, in a common fire-place, until it becomes red-hot; pour the acid into the tea-cup; and removing the whole from the fire, place the pot on the improved tea-kettle lamp in the middle of the apartment, and add the nitrate in successive portions, stirring the mixture with a glass rod, or handle of a tobacco pipe.

The vapour is to be allowed freely to disperse throughout the apartment; the doors and windows being kept closely shut.

The valuable discovery of the application of the vapour of nitrous acid, to the destruction of contagion, we owe to the genius of Dr CARMICHAEL SMYTH *. He subsequently proved, that this active vapour, supposed a short time since to be highly noxious, might be respired, not merely without danger, when diffused in the air of the apartment of the sick, but with the utmost benefit to them, as well as attendants, during the course of contagious fever, destroying not only the offensive emanations from the body of the sick, but the contagion of the disease itself.

In the above formula, the proportion of nitrate of potass is greater by one-third, and a much stronger heat was applied, than is stated by Dr CARMICHAEL SMYTH, as the sand pot was heated to redness, and the white vapour of the nitric acid was allowed to accumulate, so as to keep the apartment of the sick

* See his work on Nitrous Vapour in destroying Contagion. The experiment was first made on board the Union Hospital Ship, and repeated since with complete success, in numerous instances.

filled with a dense cloud, until the apparatus gradually cooled, on extinguishing the lamp.

The only inconvenience experienced during this process, originated from a perceptible portion of sulphurous acid, extricated from the mixture during the process, by the partial decomposition of the acid employed. This, however, affords a signal for removing the apparatus.

(2.) THE VAPOUR OF MURIATIC ACID

was first applied to the destruction of contagion, from a fortunate analogy, in the successful use of it, in destroying the putrid exhalations from exhumed dead bodies in the church of Dijon in 1775, by the late celebrated GUITON MORVEAUX, of the Institute of France. In order to obtain this vapour, it is only necessary to substitute pure culinary (basket) salt, previously heated to redness, and allowed to cool, for the nitrate of potass; and to add this salt to the heated sulphuric acid, in the same manner as in the last process. But the great objection to the muriatic acid vapour is, that it cannot be admitted of the necessary strength, unless the sick and attendants, &c.

are removed. For it cannot be respired without producing coughing, unless so much diluted by the air in the apartment, as in fact to render it inefficient. Therefore, where the contaminated air of an apartment is to be THOROUGHLY DISINFECTED, the removal of the sick is absolutely necessary.

(3.) VAPOUR OF OXYGENATED MURIATIC ACID, is certainly preferable, then, under such circumstances, as it is infinitely more active in utterly decomposing this destructive scourge of the human race. For the obtaining this powerful agent, the following process is requisite.

Take of Muriate of Soda,

Water, each four ounces.

Oxyde of Manganese, an ounce.

Sulphuric Acid, four ounces.

Mix the salt with the manganese, in a Wedgwood stone or glass vessel placed in a sand pot, as in the first process. Set it on the lamp. Pour in the acid slowly, diluted with the water, and immediately retiring, shut the apartment closely; and continue the process for a greater or less time, admitting the air freely before entering the apartment. It must be observed, that

the muriatic acid in these last states, acts so powerfully as to destroy both linen and woollen stuffs; but the walls of the room, wooden furniture, &c. are entirely disinfected, the poison being annihilated.

These processes, although extremely simple, must, of course, be superintended by the medical attendants. The last cannot be too strongly recommended to those about to occupy a house or lodgings previously possessed by such as have been infected with fever; and certainly ought not to be neglected at the usual terms of entry to dwellings.

The Author regrets that the present sheet was nearly printed off before he read the Report by Dr DUNCAN *junior*, published in the Edinburgh Magazine (CONSTABLE'S) for November 1817. The important facts there stated, farther illustrate the necessity of the measures here pointed out.

